CLAIMS

Claim 24 (currently amended): A method of molding a sheet molding compound, the method comprising:

combining a macrocyclic oligoester and a reactive compound with a transesterification catalyst thereby forming a reactive admixture wherein the reactive compound is selected from another macrocyclic oligoester or a secondary compound;

combining the reactive admixture with a reinforcement material to form the sheet molding compound; and

molding the sheet molding compound at an elevated temperature, the reactive compound thereby forming a cross-linked matrix within the sheet molding compound, and wherein the macrocyclic oligoester reacts with the reactive compound in the presence of the transesterification catalyst to produce polymer chains and the polymer chains are integrated into the cross-linked matrix wherein~~, either:~~

~~i) the polymer chains are formed separately from the cross-linked matrix; or~~

~~ii)~~ a linking agent couples the polymer chains together in the matrix and the linking agent is a multi-functional linking agent selected from a diepoxide, a diisocyanate, a diester or a combination thereof.

Claim 25 (canceled)

Claim 26 (currently amended): A method as in claim 24 ~~claim 25~~ wherein the macrocylic oligoester is dihydroxyl functionalized and has a molecular weight of between 500 and 100,000.

Claim 27 (previously presented): A method as in claim 24 wherein the polymer chains are formed separately from the cross-linked matrix and wherein styrene, methyl methacrylate and a vinyl ester resin are copolymerized to produce the cross linked matrix.

Claim 28 (currently amended): A method as in claim 24 ~~claim 25~~ wherein the reactive compound is a secondary compound and the polymer chains are block copolymers.

Claim 29 (previously presented): A method as in claim 24 wherein an end-capped saturated polyester selected from a polycaprolactone terminated by a phenyl isocyanate and a diethylene glycol adipate polyol terminated by phenyl isocyanate are present for assisting in maintaining greater dimensional stability.

Claim 30 (currently amended): A method as in claim 24 wherein the reactive admixture includes a linking agent ~~and the linking agent is a reactive monomer~~ selected from a styrene, a methyl methacrylate or a peroxide.

Claim 31 (previously presented): A method as in claim 24 further comprising:

combining a filler with the reactive admixture wherein the filler and the reinforcement material represent at least about 50% by weight of the sheet molding compound.

Claim 32 (previously presented): A method as in claim 31 wherein the filler is calcium carbonate and wherein the macrocyclic oligoester, the secondary compound or both are present in the sheet molding compound in an amount between about 1% and about 30% by weight.

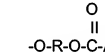
Claim 33 (previously presented): A method as in claim 24, further comprising:

applying the sheet molding compound to one or more plastic films, the plastic films being at least partially formed of a polyester resin wherein, upon molding, the sheet molding compound is integrated with the one or more plastic films in the one or more parts.

Claim 34 (previously presented): A method as in claim 24, further comprising:

admixing into the molding compound, a low profile agent including a clay that is intercalated with a macrocyclic oligoester; wherein exfoliation of the clay during polymerization of the macrocyclic oligoester increases volume for offsetting shrinkage and wherein the step of molding the sheet molding compound occurs in a time period selected from within 24 hours of forming the admixture or no less than 10 days after forming the admixture.

Claim 35 (previously presented): A method as in claim 25 wherein the macrocyclic oligoester has a structural repeat unit of formula:



wherein R is an alkylene, a cycloalkylene, or a mono- or polyoxyalkylene group, and A is a divalent aromatic or alicyclic group.

Claim 36 (previously presented): A method as in claim 24 wherein:

i. the reinforcement material includes glass fibers;
ii. the sheet molding compound includes at least 40% filler, which includes calcium carbonate, glass microspheres or both;
iii. the reactive admixture includes a styrene monomer;
iv. the reactive admixture includes an unsaturated polyester; and
v. the macrocyclic oligoester includes polybutylene terephthalate.

Claim 37 (previously presented): A method as in claim 24 wherein the reactive admixture includes a thermosetting resin.

Claim 38 (previously presented): A method of molding a sheet molding compound, the method comprising:

combining a macrocyclic oligoester and a reactive compound with a transesterification catalyst thereby forming a reactive admixture wherein the reactive compound is selected from another macrocyclic oligoester or a secondary compound and the macrocyclic oligoester is a cyclic butylene terephthalate;

combining the reactive admixture with a reinforcement material to form the sheet molding compound; and

molding the sheet molding compound at an elevated temperature, the reactive compound thereby forming a cross-linked matrix within the sheet molding compound, and wherein the macrocyclic oligoester reacts with the reactive compound in the presence of the transesterification catalyst to produce polymer chains and the polymer chains are integrated into the cross-linked matrix and wherein a linking agent couples the polymer chains together in the matrix and the linking agent is a multi-functional linking agent selected from a diepoxide, a diisocyanate, a diester or a combination thereof.

Claim 39 (previously presented). A method as in claim 38 wherein the reactive compound is a secondary compound and the polymer chains are block copolymers.

Claim 40 (previously presented): A method as in claim 38 further comprising:

combining a filler with the reactive admixture wherein the filler and the reinforcement material represent at least about 50% by weight of the sheet molding compound wherein the filler is calcium carbonate and wherein the macrocyclic oligoester, the secondary compound or both are present in the sheet molding compound in an amount between about 1% and about 30% by weight.

Claim 41 (previously presented): A method as in claim 38, further comprising:

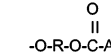
applying the sheet molding compound to one or more plastic films, the plastic films being at least partially formed of a polyester resin wherein, upon molding, the sheet molding compound is integrated with the one or more plastic films in the one or more parts.

Claim 42 (previously presented): A method as in claim 38, further comprising:

admixing into the molding compound, a low profile agent including a clay that is intercalated with a macrocyclic oligoester; wherein exfoliation of the clay during polymerization of the macrocyclic oligoester increases volume for offsetting shrinkage

Claim 43 (previously presented): A method as in claim 38 wherein the step of molding the sheet molding compound occurs in a time period selected from within 24 hours of forming the admixture or no less than 10 days after forming the admixture.

Claim 44 (previously presented): A method as in claim 38 wherein the macrocyclic oligoester has a structural repeat unit of formula:



wherein R is an alkylene, a cycloalkylene, or a mono- or polyoxyalkylene group, and A is a divalent aromatic or alicyclic group.

Claim 45 (previously presented): A method of molding a sheet molding compound, the method comprising:

combining a macrocyclic oligoester and a reactive compound with a transesterification catalyst thereby forming a reactive admixture wherein the reactive compound is selected from another macrocyclic oligoester or a secondary compound and the macrocyclic oligoester is a cyclic butylene terephthalate having a molecular weight of between 500 and 100,000;

combining the reactive admixture with a reinforcement material to form the sheet molding compound wherein the reinforcement material;

combining a filler with the reactive admixture wherein the filler and the reinforcement material represent at least about 50% by weight of the sheet molding

compound wherein the filler is calcium carbonate and wherein the macrocyclic oligoester, the secondary compound or both are present in the sheet molding compound in an amount between about 1% and about 30% by weight; and

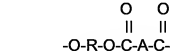
molding the sheet molding compound at an elevated temperature, the reactive compound thereby forming a cross-linked matrix within the sheet molding compound, and wherein the macrocyclic oligoester reacts with the reactive compound in the presence of the transesterification catalyst to produce polymer chains and the polymer chains are integrated into the cross-linked matrix and wherein a linking agent couples the polymer chains together in the matrix and the linking agent is a multi-functional linking agent selected from a diepoxide, a diisocyanate, a diester or a combination thereof.

Claim 46 (previously presented): A method as in claim 45, further comprising:

applying the sheet molding compound to one or more plastic films, the plastic films being at least partially formed of a polyester resin wherein, upon molding, the sheet molding compound is integrated with the one or more plastic films in the one or more parts; and

admixing into the molding compound, a low profile agent including a clay that is intercalated with a macrocyclic oligoester; wherein exfoliation of the clay during polymerization of the macrocyclic oligoester increases volume for offsetting shrinkage and wherein the step of molding the sheet molding compound occurs in a time period selected from within 24 hours of forming the admixture or no less than 10 days after forming the admixture;

wherein the macrocyclic oligoester has a structural repeat unit of formula:



wherein R is an alkylene, a cycloalkylene, or a mono- or polyoxyalkylene group, and A is a divalent aromatic or alicyclic group and wherein the reactive compound is a secondary compound and the polymer chains are block copolymers.